FYI-0500-1378

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

SPP

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OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

May 25, 2000

FYI-00-001378

3M Company, Inc.
Attn: William A Weppner, Ph.D.
Director, Environmental, Health, Safety & Regulatory Affairs
Specialty Materials Group
3M Center, Bldg. 236-1B-10
St. Paul, MN 55144

RECEIVED
OPPT NCIC
00 MAY 25 PM 2:42

SUBJECT: FYI-0500-01378

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Dear Dr. Weppner:

The EPA Office of Pollution Prevention and Toxics requests copies of three environmental fate and transport studies not included with other listed studies provided in your May 4, 2000 letter to Charles Auer on perfluorooctane sulfonates. These are: 1) Biodegradation Studies; 2) Phytotoxicity - Seedling Emergence; and 3) Global Environmental Sampling Plan. Enclosed is the list from your submission with full citations.

We also request confirmation that Scotchguard Cleaner for Rugs and Carpet, Scotchguard Cleaner for Fabric & Upholstery and Scotchguard Heavy Duty Water Repellent will remain in commercial production. If this is correct, please provide the complete chemical compositions for these products and for any other Scotchguard products that will remain in commerce. Attached is a copy of the May 17, 2000 Washington Post article listing the Scotchguard products that reportedly will remain in commercial production.

Enclosed is a copy of "Support Information for Confidentiality Claims". Please cite FYI-0500-01378 or 8EHQ-1180-00373 and address your response to:

Document Control Office (7407)
Room G99 East Tower Attn: FYI (or Section 8(e))
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460-0001

2000 MAY 30 AM 11:10
OPPT NCIC

Questions regarding this request should be directed to Mr. Terry O'Bryan of my staff at (202) 260-3483 or E-Mail OBRYAN.TERRY@EPA.GOV

Sincerely,

Terry O'Bryan, for

Richard H. Hefter, Chief
High Production Volume Chemicals Branch

cc: Charles Auer

Enclosures

3M General Offices

3M Center
St. Paul, MN 55144-1000
612 733 1110

3M

May 4, 2000

VIA FEDERAL EXPRESS

Dr. Charles Auer
Director
Chemical Control Division
Office Of Pollution Prevention And Toxics
United States Environmental Protection Agency
401 M Street, Southwest
Room 403 East Tower (Mail Code 7405)
Washington, D. C. 20460

Re: Information On Perfluorooctane Sulfonates

Dear Charlie:

Pursuant to our recent communications, 3M is enclosing additional information on perfluorooctane sulfonates. The enclosed information supplements information submitted to you previously under cover of our April 21, 2000 letter. Again, we are providing this information on a voluntary basis as part of our continuing discussions with EPA regarding fluorochemistry.

The enclosed information covers perfluorooctane sulfonates, including CAS numbers 1763-23-1 (acid); 29081-56-9 (ammonium salt); 70225-14-8 (DEA salt); 2795-39-3 (potassium-salt); 29457-72-5 (lithium salt). It consists of the following:

⇒ Copies of post-1975 studies and certain other information relating to the following environmental science areas: (i) physical and chemical properties; (ii) environmental fate and transport; (iii) environmental monitoring; and (iv) ecotoxicity. For each study, 3M has prepared a summary in the HPV "robust summary" format. An executive summary also has been included for each area.

⇒ Copies of post-1975 studies and certain other information relating to the following health effects areas: (i) acute toxicity; (ii) genotoxicity; (iii) repeated-dose toxicity;

ATTACHMENT TO LETTER TO C. AUER DATED MAY 4, 2000: ONGOING ENVIRONMENTAL STUDIES ON PERFLUOROOCTANESULFONATES

Physical/Chemical Properties

Potential Fluorochemical Combustion By-Products (involves review of results of literature search regarding potential for formation of florindated dioxins and furans), 3M Environmental Laboratory. Expected completion: Sept. 2000. Study paper in progress.

Fluorochemical Decomposition Process: Quantification and Assessment (involves computational chemistry calculations of bond-breaking strengths of sulfonated perfluorochemicals), Battelle Memorial Institute. Expected completion: Aug. 2000. Study paper in progress.

Environmental Fate and Transport

1 – Abiotic Degradation Studies (hydrolysis and indirect photolysis), 3M Environmental Laboratory. Expected completion: June 2000 (hydrolysis); Aug. 2000 (indirect photolysis). (Summary study plan and screening results summary being provided to EPA)

Missing 2a – Biodegradation Studies (aerobic acclimated closed bottle biodegradation, aerobic soil/sediment biodegradation, pure culture aerobic, and fluorochemical decomposition process, stability in water, photodegradation), Springborn Laboratories, Inc. Expected completion: Aug. 2000. (Summary study plan being provided to EPA)

2b – Study Designs – 3M Microbial Metabolism Program

Ecotoxicity Elements

3 – PFOS: A 96-Hour Toxicity Test with the Freshwater Alga (*Anabaena flos-aquae*), Wildlife International, Ltd. Expected completion: July 2000. (Protocol being provided to EPA)

4 – PFOS: A 96-Hour Toxicity Test with the Freshwater Diatom (*Navicula pelliculosa*), Wildlife International, Ltd. Expected completion: July 2000. (Protocol being provided to EPA)

5 – PFOS: A 96-Hour Toxicity Test with the Marine Diatom (*Skeletonema costatum*), Wildlife International, Ltd. Expected completion: July 2000. (Protocol being provided to EPA)

6 – PFOS: A 7-Day Toxicity Test with Duckweed (*Lemna gibba*), Wildlife International, Ltd. Expected completion: July 2000. (Protocol being provided to EPA)

Missing 7 – Phytotoxicity – Seedling Emergence, Wildlife International, Ltd. Expected completion: July 2000. Protocol in progress.

Environmental Monitoring

Missing 8 – Global Environmental Sampling Plan, Michigan State University. Expected completion: Dec. 2000. (Summary being provided to EPA)

9 – Determination of PFOS, PFOSA, and POAA in water by Liquid-Solid Extraction and High-Performance Liquid Chromatography/Tandem Mass Spectrometry (no date) 17 pp.

10 – Compound-Specific Quantitative Characterization of Organic Fluorochemicals in Biological Matrices, A.F. Hansen et al. (no date). 22 pp.

3M to Pare Scotchgard Products

One Long-Lasting Compound Is Cited

By DAVID BROWN
and CAROLINE E. MAYER
Washington Post Staff Writers

3M Co. yesterday announced it would stop making many of its well-known Scotchgard stain-repellent products after finding that one of the chemical compounds used to make the products persists in the environment and is found widely in the bloodstreams of people worldwide.

The substance, perfluorooctane sulfonate, is released in minute quantities by products as various as water-repellent coatings and fire-suppressing foams. It is made almost entirely by 3M, the huge St. Paul-based company known formally as Minnesota Mining and Manufacturing Co.

Studies have not demonstrated any hazards to human health from the compound, known informally as PFOS. Like many synthetic compounds, however, it has proved toxic to laboratory animals at high doses.

"We have tested it pretty widely—not only in this country but in other countries, as well—and it's found in very low levels everywhere we test," said Bill Coyne, 3M's senior vice president for research and development. "It is persistent and pervasive, and that is the reason we don't want to continue to add it to the environment."

"Persistent and pervasive" man-made compounds have been among the biggest environmental headaches of recent decades. For some, such as the pesticide DDT and the insulating fluid PCB, the toxic ef-

3M, *From A1*

fects are relatively clear. For others, there are no clear hazards. However, any compound that doesn't easily degrade is a source of worry.

"It's not a rare occurrence that we do have persistent chemicals in the environment, but it's an area that is very much concern to the agency," said Stephen Johnson of the Environmental Protection Agency's office of prevention, pesticides and toxic substances. He said EPA supported 3M's decision.

Gina Solomon, a physician and senior scientist at the Natural Resources Defense Council, an environmental group, praised the company for "removing the product before there is absolute scientific proof of harm. . . . If companies had taken the same kind of precautionary action with DDT and PCB, then we wouldn't be in the same bad situation we're in now."

PFOS has been used since the 1950s, and 3M health officials have been measuring its concentrations in its workers since the 1970s, as well as monitoring their health.

"There have been no health effects in our employee population," said Larry Zobel, a physician and the company's corporate medical director. "People should know that these workers have no health effects related to these materials—that is the bottom line of 30 years of medical monitoring."

Several years ago, however, company chemists became able to measure PFOS in extremely small concentrations. In tests of stored blood from the United States, Japan, Europe, and China PFOS was found at levels of 10 to 100 parts per billion (PPB). When the same ultra-sensitive test was performed on blood samples from the 1980s, the compound was absent. This suggested PFOS had begun to accumulate in human tissue at some time in the last decade or so.

That finding led the company to do further toxicological studies on laboratory animals. In one, massive doses were given to rats, whose offspring subsequently showed high death rates soon after birth. (Previous studies, at lower doses, had shown no birth defects or high death rates in the animals.)

The company notified the EPA of the latest rat study in September 1998, and met with agency officials several months later, Zobel said. In March, the company and the EPA reviewed the data again, and the company decided to cease production of PFOS by the end of the year.

There are no immediate substitutes for the compound, although the company is searching for them, Coyne said. The company will also stop making a second, related compound, called perfluorooctanoic acid, which is used in industrial processes and does not appear in consumer products. A small amount of PFOS may continue to be manufactured for use in fire-retardant foams, he added.

Innumerable consumer products contain PFOS in trace amounts. The compound is given off by coatings made by 3M and put on furniture fabric, carpets, car upholstery and food packaging to repel oil and water. These coatings can be applied by the manufacturer of the finished product or sometimes by consumers themselves.

"The surprise wasn't that it was in our workers—that's something we've known for some time," said Charles Reich, 3M's executive vice president of specialty material markets. " It was a complete surprise that it was in the blood bank supplies."

The company said the affected product lines account for $320 million in annual sales, or about 2 percent of the company's annual sales of $16 billion. It said it would take a one-time charge of $200 million sometime this year to reflect the product phaseout.

The stock market yesterday applauded the move, with the stock closing at $90.0625, up $4.125. "They're taking a preemptive move to lower exposure to possibly adverse consequences down the road," said Jim Kelleher, senior industry analyst with Argus Research. "It is a low-return business anyway, since it is one of its older products and the company has pledged to have 35 percent of its revenues [from products] introduced within the last five years."

Reich said the company had considered a longer phaseout, over five to seven years, to give the company time to develop a new process to make the products. But eventually, it decided to end production at a firm date to avoid any debate over the lingering effects of the compound.

3M's surveillance found levels of PFOS of about 2 parts per million in the bloodstream of plant workers. This was roughly 100 times the amount found in the general population samples. No increased mortality from any cause, or from cancer, was found in the plant employees. In fact, as is usually the case, those people had lower death rates than the population as a whole, a phenomenon known to epidemiologists as the "healthy worker effect."

End of the Line

3M announced yesterday it will stop producing some of its Scotchgard stain-repellent products because it is concerned that some of the chemicals used to produce the products linger in the environment. The company said the products were not a health hazard, so consumers could continue to use any they have at home, but the company will no longer make them by the end of the year. The affected products are:

- **Scotchgard Protector for Fabric & Upholstery** (a red can).
- **Scotchgard Protector for Rugs & Carpet** (a blue can).
- **Scotchgard Protector for Leather** (a brown can).

Products that are unaffected and will continue to be made and sold include:

- **Scotchgard Cleaner for Rugs and Carpet** (a purple can).
- **Scotchgard Cleaner for Fabric & Upholstery** (a mauve can).
- **Scotchgard Heavy Duty Water Repellent** (a green can).

5